LOGO! interface

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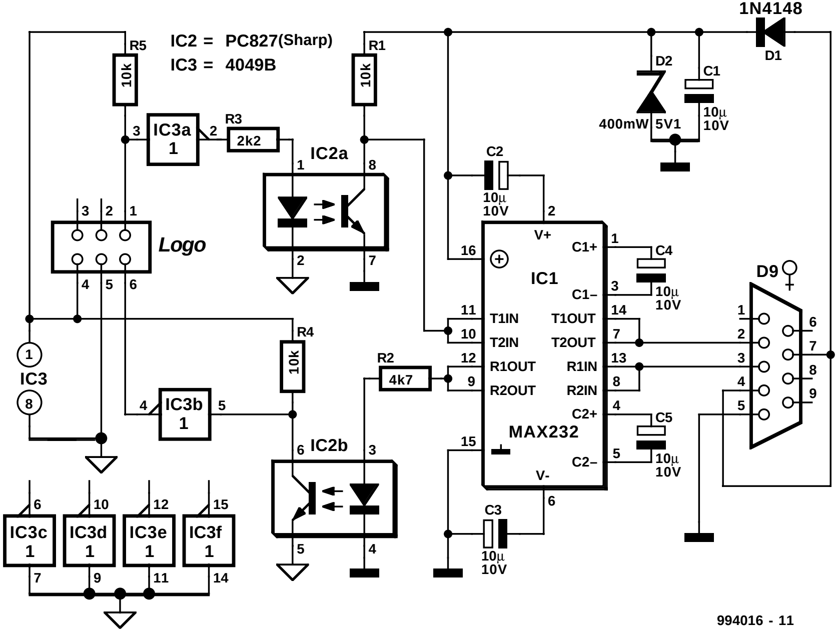

Design: W. Kriegmaier

A special adapter cable is needed to connect a PLC of the Siemens LOGO! series to the serial interface of a PC. Of course, you can obtain such a cable ready-made (at a price!), but you can also make one yourself inexpensively.

The interface circuit consists of a galvanic isolator and a level converter. The galvanic isolation is provided here by a dual optocoupler (Sharp PC827), although two single PC817 optocouplers could be used instead, or other types as long as their current transfer ratio (CTR) is at least 50% at a forward current I_F of 5mA. Since the two optocouplers are built as inverters, a pair of inverter gates must be used to restore the signals — IC3a (to the PC) and IC3b (from the PC). R3 acts as a current-limiting resistor, and R4 is a pull-up resistor that holds the line securely high when the signal level is not definitely low.

The well-known MAX232 IC is used to convert the signal levels between 0/+5 V (on the PLC side) and symmetric ±12 V (RS232) for the serial interface. Since only the RxD and TxD lines are needed, two drivers of the MAX232 can be connected in parallel in each direction.

As a rule, the LOGO! interface does not need its own power supply. The level converter, the phototransistor of IC2a and the LED of IC2b are powered from the RS232 interface. Zener diode D2 limits the voltage to +5 V for this purpose. The LOGO! PLC provides the operating voltage for the inverters, the LED of IC2a and the phototransistor of IC2b.

The interface circuit needs only around 10 mA from the RS232 interface. In certain rare cases this can overload the interface drivers of the PC, in which case an external +5 V supply will be necessary.

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